

# **LAND SURVEYS FOR RIGHTS OF WAY**

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# TABLE OF CONTENTS

<b>PREFACE</b>	1	B. Trees	29
<b>INTRODUCTION</b>	3	C. Posts:	30
<b>CHAPTER 1</b>		D. Pits:	30
<b>GENERAL</b>	5	Identifying Original Monuments	30
Definitions	5	Records of Survey	31
Laws	5	Unrecorded Surveys	32
Legal Basis for Boundary Determination	5	<b>CHAPTER 4</b>	
Read Critically	6	<b>LAND NET FIELD TIES</b>	33
Title Reports	7	The Total Station - Production Up, Precision Up, Procedures ?	33
<b>CHAPTER 2</b>		A Revolutionary Development - The GPS	33
<b>EARLY LAND DIVISION IN CALIFORNIA</b>	9	Coordinate Systems	35
Spanish California 1542-1822	9	Two California Coordinate Systems	36
A. Missions	9	Grid vs. Ground	36
B. Presidios	9	<b>CHAPTER 5</b>	
C. Pueblos	9	<b>EASEMENTS, RIGHTS OF WAY AND TYPES OF TITLE</b>	39
D. Ranchos	11	Easements	39
E. Rancherias	11	A. In Gross	39
Mexican California 1822-1847	11	B. Appurtenant	39
United States, California	13	C. Floating	39
B. Recognizing and Confirming Land Grants	15	D. Prescriptive	40
C. The Sutter Grant	15	E. Augmenting/Encumbering	40
D. Original Land Net	16	Rights of Way	40
E. Public Lands Surveys	16	Strip Descriptions	40
F. The System of Rectangular Surveys	16	Reversion Rights	41
Early California Surveys, A Practical Application	22	Access Rights	41
Monuments	22	Unrecorded Easements	41
Closing Corners	23	Types of Title We Acquire	41
Original Field Notes	23	A. Fee	41
Railroads	24	B. Permanent Easement	42
A. Land Grants	24	C. Temporary Construction Easements	46
B. Indemnity and Lieu Lands	24	D. Prescriptive Easements	46
C. Grants for Rights of Way	25	E. License	47
D. R/W Acquired From Private Interests	25	F. Waivers	47
Water Boundaries	26	G. Reversionary Rights	48
A. Navigable Waters:	26	H. Dedication and Donation	48
B. Accretion and Alluvion:	27	Acquiring Subordinate Interests	48
C. Erosion and Reliction:	27	Right of Entry	49
D. Avulsion:	27	Permit to Enter and Construct	49
E. Tides and Tidelands:	27	<b>CHAPTER 6</b>	
F. Reclaimed Lands:	27	<b>CONTROL OF ORIGINAL MONUMENTS</b>	51
<b>CHAPTER 3</b>		Retracing Existing Right-of-Way Lines	52
<b>RECORD DATA SEARCH AND FIELD DATA SEARCH</b>	29	<b>CHAPTER 7</b>	
The History of a Corner - What is it?	29	<b>SIMULTANEOUSLY CREATED PARCELS</b>	57
A Successful Search for Government Land Net Monuments, by Marv Pellett, Caltrans District 5	29	By Federal Law (Sectionalized Land)	57
A. Stone Mounds:	29	By State Law (Subdivision Map Act)	62
		A. Establishment of Boundaries and Corners	62

# TABLE OF CONTENTS

B. Intent of Parties	62	J. Bounds Descriptions	103
C. Permanence of Lines	63	Underlying Fee	103
D. Establishment of Streets	64	Exceptions	104
E. Establishment of Lots	65	Reservations	104
F. Three or More Monuments on Line	66		
G. Wills	69	<b>CHAPTER 10</b>	
H. Court Action	69	<b>CALLS FOR MONUMENTS IN DESCRIPTIONS</b>	107
<b>CHAPTER 8</b>		<b>CHAPTER 11</b>	
<b>SEQUENCE CONVEYANCES</b>	71	<b>ASSEMBLING THE PACKAGE</b>	111
Metes and Bounds Descriptions	71		
Value of Written Words	71	<b>CHAPTER 12</b>	
Junior and Senior Rights	71	<b>TIEING A LEGAL DESCRIPTION TO A RECORD OF SURVEY</b>	115
Basis of Bearings	72		
Terms of the Deed	75	<b>CHAPTER 13</b>	
A. Controlling and Informative Calls	75	<b>SOURCES OF INFORMATION</b>	119
B. Call for a Plat	75		
C. One Half by Federal and State Rules	76		
Government Plats vs. Field Notes	77		
Order of Importance of Elements	78		
Intent	78		
Possession - Lines of Occupation	79		
A. Calls for an Adjoiner	79		
B. Calls to Monuments	80		
C. Closing Courses	80		
D. To	80		
E. Distance and Bearing	81		
F. Coordinates	82		
G. Areas	82		
Points of Beginning	82		
Evidence of an Original Survey	83		
<b>CHAPTER 9</b>			
<b>DESCRIPTION WRITING - PRINCIPLES AND TYPES</b>	85		
Basic Principles	85		
Preambles	89		
Body of the Description	91		
A. General	91		
B. Point of Beginning	91		
C. Basis of Bearings	92		
D. Calls	93		
Types of Descriptions	96		
A. Map Reference	96		
B. Metes and Bounds	97		
C. Exception	97		
D. Public Land Division	98		
E. Non-public Lands	99		
F. Strip Descriptions	99		
G. Line Descriptions	101		
H. Flexible Metes and Bounds	102		
I. Inclusive Descriptions	103		

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# PREFACE

The material presented here came from a variety of sources. Some came from existing training materials used in the various districts, some came from individuals throughout the Department of Transportation, and some came from attorneys, surveyors, title people, old timers and others from the private sector and other public agencies.

Some individuals, however, merit special recognition. **Jim McCavitt** of the Bureau of Land Management office in Sacramento has been most helpful particularly with regard to the BLM as a source of information. **Daniel D. Nealand** of the National Archives - Pacific Sierra Region in San Bruno and **Laura McCarthy** of the National Archives - Pacific Southwest Region in Laguna Niguel were patient and helpful in explaining what kinds of records and maps they have available and how to retrieve them.

**Don Hunter** of Headquarters Geometronics wrote the historical portion of Chapter 2 and **Marv Pellett** of District 5 Surveys wrote a portion of Chapter 3. **Chuck Andrus**, District 9 R/W Engineer made a number of detailed suggestions, most of which have been included in the text. **Vance Breshears** of District 11 Surveys made significant contributions throughout the text. **Lloyd West** of District 4 Surveys contributed the sketches relating to water boundaries in Chapter 2.

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# INTRODUCTION

The practice of land surveying throughout the country is experiencing radical change brought about in part by dramatic recent advances in technology. Distances are now measured electronically and positions, both horizontal and vertical, can be obtained with the aid of satellites. Land values have continued to climb forcing a new recognition of the need for accurate retracement of boundaries. This has led to a new emphasis on the legal responsibilities and obligations of land surveyors.

A natural result of all this is the increasing desire expressed by land surveyors all over the country to call themselves "professionals." Some are calling for a requirement that new land surveyors have a 4 year degree in surveying.

The Department of Transportation has not escaped these changes. Land Surveying is gaining recognition throughout the organization for what it really is: a profession.

The Department continues to be the largest land surveying organization in the state. Each year, thousands of parcels are "split," many miles of new right-of-way are created and numerous boundary monuments of "major importance" are destroyed by new construction. Our responsibility to properly retrace property lines, prepare good, insurable legal descriptions, and to repair the damage we do to the land net is great indeed. Both the law and professional ethics require that we respond with a quality product and produce it in a timely manner.

We, unlike private land surveyors, do not have the option of saying "no" to a given parcel because of boundary problems, pending litigation, and other reasons. We must push ahead, make the decisions that need to be made, and get the job done in order that the transportation facility can be built and made available to the public. Decisiveness is a necessary qualification for the Department's land surveyors.

Every organization, including ours, has an abundance of "starters," but a shortage of "finishers." Many of us can "start" a job and bring it along to the point where it is 80% or 90% complete, but then resistance sets in. The decisions that remain to be made are difficult, unpleasant, and risky. We are reluctant to make these decisions due to lack of training, lack of experience, a shortage of data, or simply a lack of courage. We fear the embarrassment that would come our way if we made the wrong choice.

On the other hand, a "finisher" has the courage to make the final decisions (knowing full well that there is a chance one of them will be bad), assemble the package, sign it and send it on to the

next person. The purpose of this course is to provide some of the tools needed to help make those difficult decisions. The necessary courage is up to the student.

Ample opportunity will be provided throughout the course for students to analyze problems, prepare solutions, publicly defend them, and then listen as the class and the teachers test them.

The Caltrans Surveys Manual defines land surveys as:

*The process of determining boundaries and areas of tracts of land. Included within this broad term are - Cadastral Surveys, Property Surveys, Boundary Surveys, Retracement Surveys and Resurveys. Within CALTRANS the term includes both the office function of Right of Way Engineering and the field function of the Surveys Branch.*

This course is designed to prepare the personnel in the Caltrans Surveys and Right of Way Engineering Branches to perform their land surveying activities in a professional manner. It is not possible, of course, to cover every situation a surveyor might encounter, but certain basic principles are covered as well as some important research techniques. The material is really a supplement to Chapter 10 of the Surveys Manual.

One of the more important functions of the Department of Transportation is the location of rights-of-way with respect to adjacent property. This function involves what is known as property breakdown or boundary determination and is one of the "phases" in the Department's land surveying operation. The Surveying for Rights-of-Way section of the Surveys Manual lists three basic phases of land surveying: Retracement; Land division; Monumentation and Perpetuation.

The "operation" of positioning property lines is the fourth and final operation in the retracement phase of land surveys. It follows the operations of recovery, field ties and data reduction, and monument renewal and restoration.

Ownership lines are established to enable or aid in determining:

*The relation of property lines to right-of-way requirements.*

*Total ownership areas.*

*Right-of-way areas.*

*Areas to be retained by the property owner and areas to be acquired as excess.*

## INTRODUCTION

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Property lines are established and indicated by acts on the ground or by legal documents. Thus, old boundaries are located on the basis of acts and documents exercised in the past. The creation of new parcels of land, such as those created by right-of-way acquisition, is dependent upon the correct interpretation of those acts and documents.

In DEFINITIONS OF SURVEYING AND ASSOCIATED TERMS by the American Congress on Surveying and Mapping and the American Society of Civil Engineers, land boundary is defined as:

*A line of demarcation between adjoining parcels of land. The parcels may be of the same or of different ownership, but distinguished at some time in the history of their descent by separate legal descriptions. A land boundary may be marked on the ground by material monuments placed primarily for the purpose; by fences, hedges, ditches, roads, and other service structures along the line - or defined by astronomically described points and lines; by coordinates on a survey system whose position on the ground is witnessed by material monuments which are established without reference to the boundary line; by reference to adjoining present or previous owners; and by various other methods.*

The practice of boundary determination is one that must consider the laws that pertain to boundary location. Few problems confronting those who work in boundary determination can be solved by applying only exact sciences; they also depend on law, an inexact science. To correctly locate a described parcel of land is to locate its boundaries where a court of competent jurisdiction would locate them. To know where a court would locate the property boundaries, there must be an expert knowledge of the laws pertaining to boundaries.

Knowledge of what was done in the past is an indispensable tool in boundary determination; how measurements were made; the accuracies that could be attained with available instruments; the materials customarily used for the monuments; the laws that were in force at a given time. According to decisions in previous

court cases, surveyors, in retracing old property lines, are obligated to follow the "footsteps of the original surveyor"; therefore it is essential that in their areas of practice they have knowledge of the historical background of land surveys and existing laws under which they were performed.

Material to be covered in this course includes:

- Research*
- Hardcopy Map (Preliminary Map)*
- Original land net*
- Parcels created in sequence*
- Parcels created simultaneously*
- Water boundaries*
- Railroads*
- Easements and Rights-of-Way*
- The right-of-way map*
- Field surveys based on State recorded documents*
- Unrecorded surveys*

The objectives in preparing and presenting this material are:

*to assist those involved in determining the location of real property to fulfill their legal and professional responsibilities.*

*to establish a standard procedure for gathering and analyzing all of the available evidence necessary to make a correct boundary location.*

*to properly document the steps taken to arrive at a correct boundary location.*

*to teach the techniques of writing legal descriptions of new parcels.*

The course will assist personnel who are involved in the office and field functions of land surveying to meet their obligations to those from whom we acquire land, adjoining property owners, other land survey practitioners, and to the citizens of California.